

Amendment to the Claims:

1. (Currently amended) An optical apparatus for exposing light on a surface area of ~~an object having a curvature~~ a spherical semiconductor device, comprising:

a mask for providing a pattern of light through an exposure contour which undergoes temporal changes to collectively represent an image, the exposure contour being curved in opposition to a curvature of the surface of the spherical semiconductor device;

a lens positioned to focus the pattern of light ~~on~~ along a focal line across the ~~object~~ surface of the spherical semiconductor device, wherein the exposure contour has a first width in a middle region of the focal line and is made progressively wider than the first width in both directions orthogonal to the focal line toward each end of the focal line to increase exposure time and achieve a substantially uniform intensity exposure across the curvature of the spherical semiconductor device; and

a motor having a shaft coupled to the ~~object~~ spherical semiconductor device for rotating the ~~object~~ spherical semiconductor device in relation to the temporal changes in the pattern of light to expose the pattern of light over a portion of the surface area of the ~~object~~ spherical semiconductor device.

2. (Cancelled)

3. (Cancelled)

4. (Currently amended) The optical apparatus of claim 1, wherein a first exposed portion of the surface ~~area~~ of the ~~object~~ spherical semiconductor device has a width and circumscribes the ~~object~~ spherical semiconductor device.

5. (Currently amended) The optical apparatus of claim 4, wherein a second exposed portion of the surface ~~area~~ of the ~~object~~ spherical semiconductor device has a width and is non-overlapping with respect to the first exposed portion of the surface ~~area~~ of the ~~object~~ spherical semiconductor device.

6-8. (Cancelled)

9. (Original) The optical apparatus of claim 1, wherein the mask includes a mask pattern generator having an active exposure contour for providing the pattern of light.

10. (Original) The optical apparatus of claim 9, wherein the mask pattern generator comprises a digital mirror device.

11. (Original) The optical apparatus of claim 9, wherein the mask further includes a mask pattern controller operating in response to control signals and providing a portion of a mask pattern to the active exposure contour of the mask pattern generator.

12. (Currently amended) A method of exposing light on a surface ~~area~~ of ~~an object having a curvature~~ a spherical semiconductor device, comprising:

providing a pattern of light through an exposure contour of a mask which undergoes temporal changes to collectively represent an image;

directing the pattern of light along a focal line across to the surface area of the ~~object~~ spherical semiconductor device, wherein the exposure contour has a first width in a middle region of the focal line and is made progressively wider than the first width toward each end of the focal line to increase exposure time and achieve a substantially uniform intensity exposure across a curvature of the spherical semiconductor device; and

rotating the ~~object~~ spherical semiconductor device in relation to the temporal changes in the pattern of light to expose the pattern of light over a portion of the surface ~~area~~ of the ~~object~~ spherical semiconductor device.

13. (Cancelled)

14. (Currently amended) The method of claim 12, further including the step of providing a first exposed portion of the surface ~~area~~ of the ~~object~~ spherical semiconductor device having a width and circumscribing the ~~object~~ spherical semiconductor device.

15. (Currently amended) The method of claim 14, further including the step of providing a second exposed portion of the surface ~~area~~ of the ~~object~~ spherical semiconductor device having a width and non-overlapping with respect to the first exposed portion of the surface ~~area~~ of the ~~object~~ spherical semiconductor device.

16-17. (Cancelled)

18. (Currently amended) The method of claim 12 ~~16~~, wherein the exposure contour ~~has a curvature~~ is curved in opposition to a curvature of the surface of the spherical semiconductor device.

19. (Original) The method of claim 12, wherein the mask includes a mask pattern generator having an active exposure contour for providing the pattern of light.

20. (Original) The method of claim 19, wherein the mask pattern generator comprises a digital mirror device.

21. (Currently amended) A method of manufacturing a semiconductor device having a curved surface ~~area~~, comprising:
providing a pattern of light through an exposure contour of a mask which undergoes temporal changes to collectively represent an image;

directing the pattern of light along a focal line across ~~to~~ the curved surface ~~area~~ of the semiconductor device, wherein the exposure contour has a first width in a middle region of the focal line and is made progressively wider than the first width toward each end of the focal line to increase exposure time and achieve a substantially uniform intensity exposure across the curved surface of the semiconductor device; and

rotating the semiconductor device in relation to the temporal changes in the pattern of light to expose the pattern of light over a portion of the curved surface ~~area~~ of the semiconductor device.

22. (Original) The method of claim 21, wherein the semiconductor device is a spherical semiconductor device.

23. (Currently amended) The method of claim 22, further including the step of providing a first exposed portion of the curved surface ~~area~~ of the semiconductor device having a width and circumscribing the semiconductor device.

24. (Currently amended) The method of claim 23, further including the step of providing a second exposed portion of the curved surface ~~area~~ of the semiconductor device having a width and non-overlapping with respect to the first exposed portion of the curved surface ~~area~~ of the semiconductor device.

25-26. (Cancelled)

27. (Currently amended) The method of claim ~~21~~ 25, wherein a ~~length of the exposure contour has a curvature~~ is curved in opposition to the curved surface of the semiconductor device.

28. (Currently amended) A method of exposing light on a semiconductor device having a curved surface ~~area~~, comprising:
generating a pattern of light through an exposure contour of a mask;

directing the pattern of light along a focal line across to the curved surface ~~area~~ of the semiconductor device, wherein the exposure contour has a first width in a middle region of the focal line and is made progressively wider than the first width toward each end of the focal line to increase exposure time and

achieve a substantially uniform intensity exposure across the curved surface of the semiconductor device; and

rotating the semiconductor device to expose the pattern of light over a portion of the curved surface area of the semiconductor device.

29. (Original) The method of claim 28, wherein the semiconductor device is a spherical semiconductor device.

30. (Currently amended) The method of claim 28, wherein a first exposed portion of the curved surface area of the semiconductor device has a width and circumscribes the semiconductor device.

31. (Currently amended) The method of claim 30, wherein a second exposed portion of the curved surface area of the semiconductor device has a width and is non-overlapping with respect to the first exposed portion of the curved surface area of the semiconductor device.

32-33. (Cancelled)

34. (Currently amended) The method of claim ~~28~~ 32, wherein the exposure contour ~~has a curvature~~ is curved in opposition to the curved surface of the semiconductor device.